



IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

In re Application of) Patent Pending
Persson et al.)
Serial No.: 08/384,456) Examiner: Mr. Quochien Vuong
Filed: 2 February 1995) Group Art Unit: 2685
For: **Mobile Assisted Handover Using CDMA**) Confirmation No.: 9408
Attorney's Docket No: 4015-5054)

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Season Munck

Dear Sir or Madam:

The applicants file this appeal brief pursuant to 37 C.F.R. § 41.37. The applicants also enclose a check in the amount of \$620.00 to cover the \$500 appeal brief fee, as required by 37 C.F.R. § 41.20(b)(2), and to cover the \$120 one-month time extension fee, as required by 37 C.F.R. § 1.17(a)(1). While this check should cover the cost of all required fees, the applicants authorize the Commissioner to charge any additional required fees to the Coats & Bennett, P.L.L.C. Deposit Account No. 18-1167.

APPEAL BRIEF

I. REAL PARTY IN INTEREST

The real party in interest is Telefonaktiebolaget LM Ericsson (publ).

I. RELATED APPEALS AND INTERFERENCES

The applicants filed a Notice of Appeal on 21 July 1998, followed by an Appeal Brief on 21 January 1999. The Appeal Brief argued against the rejections cited against claims 1 – 22 and 49 – 52. In the Examiner's Answer mailed 12 April 1999, the examiner withdrew the rejections cited against claims 2, 5, 16, 49, and 51. As such, the Board considered the rejections of claims 1, 3, 4, 6 – 15, 17 – 22, 50, and 52. The Board issued a Decision on the Appeal on 28 March 2002. In summary, this Decision sustained the rejection of claims 50 and 52 under §112, sustained the rejection of claims 14, 15, and 52 under §102, and sustained the rejection of claims 1, 3, 4, 6 – 13, 17 – 19, and 50 under §103. The Decision did not sustain the rejection of claims 20 – 22 under §103. The applicants include a copy of the Decision in the "Related Proceedings Appendix."

There are no currently pending appeals or other proceedings, and no related interferences to the best of the applicants' knowledge.

III. STATUS OF CLAIMS

The instant application includes claims 102 and 109 – 125. During the examination process, claims 1 – 101, and 103 – 108 were canceled. During prosecution, the examiner rejected claims 102 and 109 – 125. Accordingly, the applicants appeal the rejection of claims 102 and 109 – 125.

IV. STATUS OF AMENDMENTS

All amendments made before the Final Office Action (FOA) have been entered. The applicants did not amend any claims in response to the final rejection.

V. SUMMARY OF CLAIMED SUBJECT MATTER

Independent claim 102 and dependent claims 109 – 125 are pending in the instant application. As described on page 3 lines 27 – 37 of the originally filed application, CDMA (Code Division Multiple Access) permits neighboring base stations to transmit signals to a mobile station using the same transmission frequency used by the base station currently serving the mobile station. Independent claim 102 is directed to a mobile assisted handover method in a wireless network that takes advantage of this capability (see Abstract). According to the claimed method, a first base station 32 communicates with a mobile station (page 5, lines 13 – 16; page 6, lines 5 – 6; Figure 1, Figure 3). Figure 1 illustrates an exemplary mobile station. A network controller 36 receives one or more data messages sent from the mobile station to the first base station 32 (page 8, lines 26 – 31; Figure 3). These data messages indicate the relative strength of signals transmitted to the mobile station by one or more additional base stations 35 (“second base station”) operating on the same frequency as the first base station 32 (page 8, lines 26 – 31; Figure 3). As described on page 8, lines 15 – 31, the phrase “relative signal strengths” refers to the strength of the signals received at the mobile station from a second base station 35 relative to the strength of the signals received from the first base station 32. Based on the received data messages, the network controller 36 makes a decision regarding handing over control of the mobile station from the first base station 32 to the second base station 35 (page 9, line 5 through page 11, line 22). After making the decision, the network controller 36 hands over control (page 9, line 21 through page 11, line 22).

Dependent claims 111 – 114 and 120 further claim using different spreading codes to communicate with the mobile station during handover. Claim 111 depends from independent claim 102 and further stipulates that the step of handing over the mobile station includes transmitting data from the first base station 32 using a first CDMA spreading code (original CDMA code, page 13, line 6), while simultaneously transmitting the same data from the second

base station 35 using a second CDMA spreading code (page 12, line, 23 through page 13, line 11). In so doing, the first and second base stations 32, 35 implement diversity transmission while transmitting the data to the mobile station (page 15, lines 4 – 10).

Claim 112 depends from independent claim 102 and further stipulates that the mobile station communicates with the first base station 32 using a first CDMA spreading code (original CDMA spreading code, page 13, line 15) before and during handover (page 13, lines 12 – 15, and page 14, lines 19 – 23). In addition, during and after handover, claim 112 stipulates that the mobile station communicates with the second base station 35 using a second CDMA spreading code (page 13, lines 31 – 35 and page 14, lines 23 – 28). Claim 112 further stipulates that the first base station 32 sends a control message to the mobile station, where the control message identifies the second CDMA spreading code to the mobile station (page 12, lines 23 – 26).

Claim 113 depends from claim 112 and further stipulates that, during handover, the first and second base stations 32, 35 both temporarily decode signals transmitted by the mobile station using the first CDMA spreading code (page 13, lines 12 – 18). This enables the network to dual diversity combine the received transmit signals to improve decoding and associated error correction (page 13, lines 18 – 24).

Claim 114 depends from claim 112 and further stipulates that, during handover, the first and second base stations 32, 35 both temporarily decode signals transmitted by the mobile station using both the first and second CDMA spreading codes (page 14, lines 33 – 34, page 15, lines 4 – 6). This enables the network to quadruple diversity combine the received transmit signals (page 14, lines 35 – 37).

Claim 120 depends indirectly from claim 102 via claims 115 and 118. While claims 115 and 118 are described in more detail below, these claims generally claim the way the network controls the mobile station during handover. In particular, the method of claim 118 includes signaling the mobile station from the first base station 32 to begin transmitting to the second

base station 35 and to begin responding to control signaling from the second base station 35 (page 13, lines 2 – 4) after the network determines that the mobile station is receiving sufficiently strong transmissions from the second base station 35 (page 12, line 37 through page 13, line 4). Claim 120 further stipulates that this signaling step comprises sending a control message from the first base station 32 to the mobile station, where the control message identifies a CDMA spreading code used by the second base station 35 to communicate with the mobile station (page 12, lines 23 – 26).

Dependent claims 115, 116, 118, 119, 121 and 125 describe mobile station control related to the mobile assisted handover procedure of claim 102. Claim 115 depends from claim 102 and further stipulates that the step of handing over the mobile station includes establishing communications between the mobile station and the second base station 35 while retaining control of the mobile station at the first base station 32 (page 9, lines 25 – 29), and transferring control of the mobile station from the first base station 32 to the second base station 35 after establishing communications between the second base station 35 and the mobile station (page 9, line 25 through page 10, line 18).

Claim 116 depends from claim 115 and stipulates that the handing over step of claims 102 and 115 further comprises ending communications between the first base station 32 and the mobile station after communications are established between the mobile station and the second base station 35 (page 13, lines 1 – 6). As claimed in claim 116, communications with the first base station 32 are ended by ramping down the power level of a signal transmitted by the first base station 32 to a low power level (page 13, lines 6 – 11). In so doing, the network reduces disturbances to other mobile stations communicating with the first base station 32 (page 13, lines 6 – 11).

Claim 118 indirectly depends from claim 102 via claim 115 and further defines the establishing step of claim 115. In particular, the establishing step of claim 118 requires

beginning the transmissions from the second base station 35 to the mobile station (page 9, lines 35 – 37)), and receiving signaling at the mobile station from the first base station 32 that instructs the mobile station to begin receiving the transmissions from the second base station 35 (page 12, lines 23 - 29). In edition, the establishing step includes receiving signaling from the mobile station at the first base station 32, where the signaling indicates a strength of signals received at the mobile station from the second base station 35 (page 12, lines 33 – 36). Lastly, the establishing step includes signaling the mobile station from the first base station 32 to begin transmitting to the second base station 35 and to begin responding to control signaling from the second base station 35 (page 13, lines 2 – 4) after the network determines that the mobile station is receiving sufficiently strong transmissions from the second base station 35 (page 12, line 37 through page 13, line 4).

Claim 119 depends from claim 118 and stipulates that the beginning transmission step of claim 118 includes ramping up a transmit signal for the mobile station to a desired transmit power level (page 10, lines 1 – 5). Claim 119 further stipulates that the ramping step is controlled to reduce disturbances to any other mobile stations already communicating with the second base station (page 10, lines 1 – 5).

Claim 121 depends from claim 118 and stipulates that the receiving step of claim 118 includes receiving one or more data messages at the first base station 32, where the data messages indicate the strength of the signals received at the mobile station from the second base station 35 (page 8, lines 26 – 31; Figure 3). The first base station 32 uses these data messages to determine when to handover the mobile station to the second base station 35 (page 9, lines 5 – 9).

Claim 125 depends from claim 122 and stipulates that the establishing step of claim 122 includes beginning transmissions from the second base station 35 (page 9, lines 35 – 37) and transmitting a command from the first base station 32 to the mobile station directing the mobile

station to begin receiving the transmission from the second base station 35 (page 12, lines 23 – 29). Claim 125 further requires that the first base station 32 receive signal strength reports from the mobile station, where the signal strength reports indicate the signal strength of the transmissions from the second base station 35 (page 12, lines 35 – 36). Lastly, claim 125 claims transferring control of the mobile station from the first base station 32 to the second base station 35 after determining that the signal strength of the transmissions from the second base station 35, as reported by the mobile station to the first base station 32, is sufficient (page 12, line 37 through page 13, line 11).

VI. GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL

A. Rejection of claims 102, 109, 111 – 115, 117, 118, and 120 – 125 under 35 U.S.C. §102 (e)

The examiner rejects claims 102, 109, 111 – 115, 117, 118, and 120 – 125 under 35 U.S.C. §102(e) as being anticipated by U.S. Patent No. 5,101,501 to Gilhousen (hereinafter “Gilhousen”).

B. Rejection of claim 110 under 35 U.S.C. §103(a)

The examiner rejects claim 110 under 35 U.S.C. §103(a) as being obvious over Gilhousen in view of U.S. Patent No. 5,184,347 to Farwell (hereinafter “Farwell”).

C. Rejection of claims 116 and 119 under 35 U.S.C. §103(a)

The examiner rejects claims 116 and 119 under 35 U.S.C. §103(a) as being obvious over Gilhousen in view of U.S. Patent No. 5,150,075 to Hietala (herein referred to as “Hietala”).

VII. ARGUMENT

A. The law of claim construction, anticipation, and obviousness.

1. *The law of claim construction.*

Patent examination guidelines direct examiners to give claim terms their broadest reasonable construction. MPEP, § 2111. Whether a claim term has been given its broadest reasonable construction during examination is a question of law. In re Baker Hughes Inc., 215 F.3d 1297, 55 USPQ2d 1149 (Fed. Cir. 2000). According to the appropriate legal standard, the claim term interpretation adopted by the Patent and Trademark Office for examination “must be consistent with the one that those skilled in the art would reach.” In re Cortright, 165 F.3d 1353, 49 USPQ2d 1464 (Fed. Cir. 1999).

Further, the broadest reasonable interpretation given to a claim term by an examiner must be consistent with the specification. In re Hyatt, 211 F.3d 1367, 54 USPQ2d 1664 (Fed. Cir. 2000). More particularly, the examiner must interpret claims “in view of the specification,” but should not unnecessarily import limitations from the specification into the claims. Altiris Inc. v. Symantec Corp., 318 F.3d 1363, 65 USPQ2d 1865 (Fed. Cir. 2003).

2. *The law of anticipation.*

The first step of any anticipation analysis is claim construction, and the second step involves comparing the properly construed claim to the prior art. Helifix Ltd. v. Blok-Lok, Ltd., 208 F.3d 1339, 54 USPQ2d 1299 (Fed. Cir. 2000). As for the first step, claim construction during prosecution necessarily differs from judicial claim construction in that examiners must give claim terms their broadest reasonable interpretation. MPEP, § 2111. Nonetheless, examiners must construe the claim terms consistent with the meanings that one skilled in the art would assign. Cortright, 165 F.3d at 1358. Examiners are further obligated to construe claim terms consistent with the specification. Hyatt, 211 F.3d at 1370.

As for the second step of comparing the properly construed claim to the prior art, a finding of anticipation under 35 U.S.C. § 102 is proper only if the cited reference discloses each and every limitation of the claimed invention, enables the disclosed invention, and describes the claimed invention sufficiently to have placed it into the possession of one of ordinary skill in the art. In re Paulson, 30 F.3d 1475, 31 USPQ2d 1671 (Fed. Cir. 1994). More succinctly, the law of anticipation requires that the allegedly anticipating reference disclose each and every limitation of the claimed invention. Moba, B.V. v. Diamond Automation, Inc., 325 F.3d 1306, 66 USPQ2d 1429 (Fed. Cir. 2003). See, also, In re Bond, 910 F.2d 931, 15 USPQ2d 1566 (Fed. Cir. 1990) (stating that a prior art reference anticipates the claim in question only if every element of the claimed invention is identically shown in the reference in the same arrangement as claimed).

Evaluation of whether the reference in question discloses each and every limitation of the claimed invention considers both the explicit and inherent teachings of the reference. Put simply, a reference may expressly or inherently disclose the claimed invention. Rowe v. Dror, 112 F.3d 473, 42 USPQ2d 1550 (Fed. Cir. 1997). Whether the reference inherently discloses a feature of the claimed invention is a factual question. To that end, evidence may be introduced on the factual issue of whether a claim limitation is inherent in a prior art reference. Continental Can Co. USA v. Monsanto Co., 948 F.2d 1264, 20 USPQ2d 1746 (Fed.Cir.1991).

Indeed, claim anticipation as a whole is a question of fact. In re Berger, 279 F.3d 975, 61 U.S.P.Q.2d 1523 (Fed. Cir. 2002). A factual finding of anticipation by the Board of Patent Appeals and Interferences is judicially reviewed for substantial evidence. In re Gartside, 203 F.3d 1305, 1315, 53 USPQ2d 1769, 1776 (Fed. Cir. 2000). Thus, the reviewing court examines the factual record developed by the Patent and Trademark Office (PTO) during examination and appeal of the patent application in question to determine whether substantial evidence supports the finding of anticipation.

Substantial evidence is “such relevant evidence as a reasonable mind might accept as adequate to support a conclusion.” In re Zurko, 258 F.3d 1379, 59 U.S.P.Q.2d 1693 (Fed. Cir. 2001) (quoting Consol. Edison Co. v. NLRB, 305 U.S. 197, 229, 59 S.Ct. 206, 83 L.Ed. 126 (1938)). In terms of developing a factual record during examination supporting the finding of anticipation, the PTO generally must show a sound basis for believing that the claimed invention is the same as the prior art and, upon such a showing, the burden shifts to the applicants to show they are not the same. In re Spada, 911 F.2d 705, 709, 15 USPQ2d 1655, 1658 (Fed. Cir. 1990). That is, the applicants rebut the prima facie case of anticipation by submitting evidence showing that the prior art is not the same as the claimed invention.

3. *The law of obviousness.*

As explained in Section 2142 of the MPEP, the examiner bears the initial burden of making out a prima facie case of obviousness under 35 U.S.C. § 103. Establishing the prima facie case depends on meeting three basic criteria: (1) there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings; (2) there must be a reasonable expectation of success; and (3) the prior art reference (or references when combined) must teach or suggest all the claim limitations. MPEP, § 2142.

The prior art relied upon by the examiner in advancing an obviousness rejection must teach or suggest the claimed combination and must exhibit a reasonable expectation of success with regard to making the claimed combination. Further, it is legally impermissible for the examiner to rely on the applicants’ disclosure for such teachings. In re Vaeck, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991). More specifically, the examiner bears the burden of presenting a convincing line of reasoning as to why the skilled artisan would have found the claimed invention obvious in light of the teachings of the references. Ex parte Clapp, 227 USPQ 972 (Bd. Pat. App. & Inter. 1985). The mere fact that prior art can be modified to form a claimed

invention, does not make that modification obvious absent a showing that the prior art suggested the desirability of the modification. *In re Laskowski*, 871 F.2d 115, 117 (Fed. Cir. 1989); *In re Gordon*, 733 F.2d 900, 902 (Fed. Cir. 1984).

Ultimately, whether an invention is obvious over the prior art is a question of law, supported by an underlying factual analysis. *In re Berg*, 320 F.3d 1310, 65 USPQ2d 2003 (Fed. Cir. 2003). More significantly, with respect to the examiner's obviousness rejection, the determination of whether there is a motivation or suggestion to combine references is a factual question based on specific findings. *Gartside*, 203 F.3d at 1314. On that point, the substantive question is whether one of ordinary skill in the art would have been motivated to combine the references in question. *Winner International Royalty Corp. v. Wang*, 202 F.3d 1340, 53 USPQ2d 1580 (Fed. Cir. 2000).

B. The factual record does not support the claim rejections

1. *The network in Gilhousen does not receive relative signal strength information from the mobile station.*

All of the examiner's rejections rely on the factual accuracy of his assertion that Gilhousen teaches a first base station that receives signal strength measurements associated with neighboring base stations from the mobile station, and that the network uses the received signal strength measurements to determine when to handover the mobile station to a second base station (FOA, page 3, lines 1 – 5 and page 8, line 18 through page 9, line 17; Advisory Action, page 2, line 1 through page 3, line 10). However, Gilhousen's plain teachings contradict the examiner's assertions. For example, in one embodiment, Gilhousen describes a network that measures the strength of mobile-station signals as received at different base stations as a basis for performing network-determined handover of the mobile station from one base station to another. In another embodiment, Gilhousen describes a network that receives a handover control message from the mobile station. This control message instructs the network to

handover control of the mobile station from a current base station to a new base station identified by the control message. While the control message may indirectly infer that the strength of the pilot signals received at the mobile station from the identified base station are stronger than the pilot signals received at the mobile station from the current base station, the control message itself relays no specific information about the relative signal strengths of any signals received by the mobile station. As such, neither embodiment teaches or even suggests that the network makes handover decisions based on signal strength measurements associated with neighboring base stations, where the mobile station provides the signal strength measurements to the network. This fundamental difference was repeatedly pointed out in each response submitted by the applicants during prosecution. On this point alone, the Board should reverse all rejections.

In more detail, in item 2 beginning on page 2 of the FOA and in item 1 beginning on page 2 of the Advisory Action, the examiner asserts that column 2, lines 62 – 66 and column 4, line 27 to column 5, line 11 teach the limitation “receiving, at a network controller, one or more data messages sent from said mobile station to said first base station that indicate relative signal strengths of at least a second base station operating on a same frequency as said first base station,” as claimed in independent claim 102. Further, on page 3 of the Advisory Action, the examiner notes that Gilhousen states that a control message sent to the network is “indicative that a new cell-site transmitted pilot signal is now stronger than the current cell-site transmitted pilot signal” (column 4, lines 45 – 48). The examiner interprets this language to read on “the relative signal strength” language of independent claim 102.

The examiner’s §102 rejection is legally flawed because the examiner interprets Gilhousen in a manner plainly contradicted by the teachings of Gilhousen. Gilhousen describes a network controller 10 that implements handover in one of two ways. In a first distinct embodiment, the network makes handover decisions. More particularly, Gilhousen teaches a

network controller 10 within the network that polls the neighboring cell-sites 12, 14 and determines which cell-site receives the strongest signal from the mobile station 18. Based on this determination, the network controller 10 initiates the handover of the mobile station 18. See column 3, lines 34 – 44. Clearly, the network controller 10 in this embodiment initiates handover based on information provided directly to the network controller by neighboring cell-sites 12, 14, and therefore, operates independently of the mobile station 18.

In a second distinct embodiment, Gilhousen teaches a network controller 10 that implements mobile station handover according to instructions provided by the mobile station 18. In particular, the mobile station 18 monitors pilot signals transmitted from neighboring cell sites 12, 14. When the mobile station 18 determines that a pilot signal from a neighboring cell-site 12, 14 is stronger than the pilot signal of the cell-site 16 currently serving the mobile station 18, the mobile station 18 determines that handover should be initiated. In response to this determination, the mobile station 18 generates and transmits a control message to the cell-site 16 presently servicing the mobile station 18. The current cell-site 16 provides this control message, which identifies the new cell site 12, 14, to the network controller 10 (Gilhousen at column 4, lines 44 – 50). The network controller 10 interprets the control message as a direction from the mobile station 18 to handover control from the current cell-site 16 to a cell-site 12, 14 specified by the mobile station 18 in the control message. See column 4, lines 27 – 53. This embodiment of Gilhousen is properly understood as “mobile-directed” or “mobile-initiated” handover, wherein the mobile station 18 selects the target cell-site 12, 14 for handover based on the strength of received pilot signals, and instructs the network controller 10 to implement handover to the selected target cell-site 12, 14.

Thus, it is clear that neither handover embodiment described in Gilhousen teaches or suggests that the network receives signal strength measurements associated with neighboring base stations from the mobile station.

2. *The network in Gilhousen does not implement handover based on the signal strengths in the received data messages.*

On page 3, lines 1 – 5 of the FOA, the examiner asserts that column 4, lines 27 – 68 and column 5, lines 1 – 11 teach that the network in Gilhousen determines when to handover the mobile 18 station from the current base station 16 to a new base station 12, 14 based on signal strength information provided by the mobile station. First, as discussed above, the mobile station 18 described in Gilhousen never provides information regarding the relative signal strength information to the network. As such, it is impossible for Gilhousen to teach using such signal strength information to determine when to handover control of the mobile station.

Further, instead of supporting the examiner's position, the section cited by the examiner undermines the examiner's position. Column 4, lines 31 – 37 of Gilhousen teach that mobile station 18 scans pilot signals transmitted by neighboring base stations 12, 14 to determine when/if a signal from a neighboring base station (12 or 14) becomes stronger than the mobile station's current base station 16. Mobile station 18 sends a control message to the network based on determining that a neighboring base station (12 or 14) has better signal strength than the current base station 16 (column 4, lines 42 – 45). While the control message contains information identifying the base station (12 or 14) having the stronger pilot signal strength (column 4, lines 46 – 50), the control message does not include any signal strength information. Instead, the control message is a simple directive for the network to initiate handover (column 4, lines 50 – 53). Nothing in Gilhousen teaches or suggests that the network ever uses the actual signal strength information provided by the mobile station to make handover decisions.

3. *Gilhousen does not use different spreading codes for different base stations during handover to implement diversity transmission and combining.*

On page 3, lines 9 – 15 of the FOA, the examiner asserts that column 3, lines 50 – 61 of Gilhousen teach associating a first CDMA spreading code with the first base station, and

associating a second CDMA spreading code with the second base station. In particular, the examiner asserts that offsetting the same spreading code using different code phases, as taught by Gilhousen, generates the different spreading codes of the claimed invention.

As noted by the examiner, Gilhousen teaches transmitting a pilot signal from different base stations using different code phase offsets. However, the examiner erroneously asserts that Gilhousen's use of different pilot code offsets is the same as the applicant's claimed use of first and second spreading codes at first and second base stations for diversity transmission of information to a mobile station. To determine if applying different phase offsets to the same spreading code generates different spreading codes for the purpose of diversity transmission and/or combining, as required by the claimed invention, we must first understand why Gilhousen uses different phase offsets.

As understood by those skilled in the art, transmit diversity generally involves transmitting the same information to a receiver using two or more signals. The signals may originate from different transmitter locations or antenna elements. Regardless, because the same information is received by the mobile station from multiple transmitted signals, the mobile station can use diversity combining, signal-to-signal error checking, or other techniques compatible with diversity transmission to improve reception performance.

According to the rejected claims, first and second base stations transmit the same information to the mobile station, but do so using different spreading codes to achieve diversity transmission. Contrary to the examiner's assertions, Gihousen's use of different pilot code offsets has nothing to do with diversity transmission. Indeed, Gilhousen very clearly explains that each base station transmits a different pilot signal using a different code offset so that Gilhousen's mobile station(s) can determine network timing and distinguish between the base station pilot signals (column 3, lines 55 – 61). Thus, even if one argued that different phase offsets within the same spreading code were the equivalent of different spreading codes, it is

apparent beyond argument that the use of different phase offsets has nothing to do with diversity transmission/reception as claimed by the applicants.

The applicants note that Gilhousen does discuss a diversity combining technique for multi-path signals received at a receiver (column 5, lines 22 to column 6, line 51). As well understood by those skilled in the art, multi-path signals result when a single signal transmitted from a single transmitter location or antenna element travels through multiple different paths before arriving at a receiver. While Gilhousen does teach using diversity combining at the mobile station to improve the reception quality of multi-path signals received at the receiver, nothing in Gilhousen even suggests that the diversity combining is achieved based on multiple signals containing the same information content being transmitted from different transmitter locations using different CDMA spreading codes. Instead, Gilhousen's diversity combining discussions only focus on using a conventional diversity combining technique to improve the signal quality of multi-path signals received at a receiver.

For at least these reasons, Gilhousen does not teach using different spreading codes for different base stations during handover to implement diversity transmission and combining.

4. *Gilhousen does not teach transmitting a new CDMA spreading code to the mobile station during handover.*

On page 3, lines 16 - 22 of the FOA, the examiner asserts that column 4, line 54 to column 5, line 11 describes a mobile station 18 communicating with different base stations 12, 14, 16 using different CDMA spreading codes. However, the cited section simply notes that a PN code address assigned to the mobile station 18 does not need to change during handover. This section says nothing about the mobile station 18 using different CDMA spreading codes to communicate with different base stations 12, 14, 16.

Further, on page 3, line 22 through page 4, line 3 of the FOA, the examiner asserts that column 10, line 65 to column 11, line 7 teach sending a message from the controlling base

station 16 to the mobile station 18 that identifies a second CDMA spreading code used by a second base station 12, 14. However, the section by the examiner describes that a transmit modulator 52 in the mobile station 18 modulates an encoded signal onto a PN carrier signal whose PN sequence is chosen by a control processor 46 based on information transmitted by the current base station 16 during call setup. Further, as described in column 10, line 65 to column 11, line 7, the PN sequence identified during call setup does not change during handover. Therefore, even if the examiner insists that a PN sequence generally corresponds to the claimed CDMA spreading code, Gilhousen does not teach transmitting a new PN sequence to the mobile station 18 during handover.

5. *Hietala does not ramp base station or mobile station power during handover.*

On page 7, line 19 to page 8, line 12 of the FOA, the examiner concedes that Gilhousen does not teach ramping a base station's transmit power during handover, but asserts that column 1, lines 59 – 65 of Hietala teach ramping down a transmit signal to a low power level, where the ramping is controlled to reduce disturbances to other mobile stations in the cell. However, in making the rejection, the examiner completely ignores the purpose of the ramping operation taught by Hietala.

Hietala does not teach ramping base station transmission power in the context of handover, or even in the context of CDMA networks. Indeed, Hietala specifically directs its teachings to TDMA-based transmissions, wherein data for a given mobile station 103 is transmitted only during assigned time slots (column 1, lines 53 – 59). In this context, Hietala teaches ramping the transmit power up at the beginning of the slot, and ramping it down at the end of the slot (column 1, lines 29 – 63). Hietala teaches that such transmit power control reduces same-frequency interference in the system (column 1, lines 62 – 63). The examiner never addresses what such slot-based transmit power control has to do with a source base

station ramping its power down as a target base station ramps its power up during the handover of a mobile station from the source to the target base station, as claimed in the rejected claims.

Indeed, the examiner's rejection arguments make no attempt to explain how Hietala's TDMA slot-based ramping is applicable to any kind of handover process, much less the handover process described by Gilhousen. Even if it somehow were, infusing Gilhousen with the teachings of Hietala does not result in the claimed coordinated up/down power ramping between base stations involved during handover.

C. The examiner misconstrues claim terms.

1. *The examiner misconstrues the term "relative signal strengths."*

Independent claim 102 includes limitations related to the "relative signal strengths" of a second base station. The network controller 36 of the claimed invention receives one or more data messages from the mobile station via a first base station 32, where the data messages indicate relative signal strengths of at least a second base station 35. This signal strength information may include amplitude and phase information (page 6, lines 20 – 23). As such, the claimed "relative signal strength" information included in the received data messages relays specific information about the strength of signals transmitted to the mobile station from a neighboring base station 35 ("second base station") (see page 8, lines 15 – 31). For this reason, the data messages of the claimed invention include signal strength measurement information.

The examiner's rejections against independent claim 102 relies on his interpretation that the control messages described in Gilhousen are the same as the data messages of the claimed invention (see page 8, line 18 to page 9, line 17 of the FOA). However, Gilhousen's control message simply identifies a new base station and instructs the network to handover control of the mobile station 18 from a current base station 16 to the new base station (12 or 14), as discussed above. The mobile station 18 of Gilhousen might generate the described

control message because it has measured stronger signal strength for a neighboring base station, but the control message itself carries no signal strength measurement information. At most, one could infer that the new base station (12 or 14) identified by the control message as the handover target presents the mobile station 18 with a stronger signal than the current serving base station 16. However, that inference is not made by Gilhousen, nor is it relevant to the rejection analysis, because the bottom line is that the control message described by Gilhousen carries no signal strength information. As such, it cannot be the basis for arguing that the transmission of relative signal strength measurements from the mobile station claimed by the applicants is anticipated.

By asserting that that the control message described by Gilhousen is equivalent to the claimed data messages that include relative signal strength information, the examiner applies an overly broad interpretation to the claim language. As discussed above, claim terms must be construed consistent with the specification, and as would be understood by one skilled in the art. The specification clearly describes that the claimed "relative signal strength" represents signal strength measurement information associated with neighboring base stations relative to the serving base station. As such, it is a misconstruction to argue that a control message commanding handover and carrying no signal strength measurement information, as taught by Gilhousen, is the same as a data message carrying relative signal strength measurement information, as claimed by the rejected claims.

D. Gilhousen does not anticipate claims 102, 111, 112, 114, 118, 120, 121, and 125.

The following rebuts the §102 rejections cited by the examiner in the FOA. These arguments are based on the claim summaries presented in Section V, and on the remarks presented in Section VI, sub-section A through sub-section C.

1. *Gilhousen does not anticipate claim 102 or any of its dependents.*

Independent claim 102 includes the limitations of “receiving, at a network controller, one or more data messages sent from said mobile station to said first base station that indicate relative signal strengths of at least a second base station operating on a same frequency as said first base station” (emphasis added). However, as discussed above, the examiner simultaneously mischaracterizes the teachings of Gilhousen and applies an overly broad interpretation to the language of independent claim 102. Nothing in Gilhousen teaches or suggests receiving the claimed data messages from a mobile station, where the claimed data messages includes information regarding the relative signal strengths of a second base station. Further, when interpreted in light of the specification, the relative signal strengths of claim 102 correspond to specific signal strength information. Therefore, Gilhousen does not anticipate the receiving step of claim 102.

Independent claim 102 includes the further limitation of “determining, by said network controller, to handover said mobile station from said first base station to said second base station based on said signal strengths” (emphasis added). First, because Gilhousen does not receive the signal strength information, Gilhousen necessarily cannot determine handover based on such information. Further, in the embodiment utilizing control messages provided by the mobile station, Gilhousen teaches that the mobile station determines when control should be handed over to a new base station, and uses a control message to identify the new base station to the network and to instruct the network to implement the handover. Gilhousen plainly teaches a mobile station sending control messages to direct the network to hand control of the mobile station over from a current base station to a new base station identified by the control message. The network does not pick the new base station. Instead, the mobile station selects the new base station. Further, the mobile station does not send signal strength information to the network. Instead, the mobile station simply sends the handover command in the form of the

described control message. For at least these reasons, Gilhousen does not anticipate the determining step of independent claim 102.

In addition to the remarks made above, the applicants note that on page 3 of the Advisory Action, the examiner asserts that the applicants' after final arguments state that "the network **initiates** and controls hand-off based on signal strength data collected by the mobile station" (emphasis added by the examiner). The examiner further asserts that these features are not recited in claim 102. The applicants strongly disagree. First, the applicants note that independent claim 102 includes the steps of "determining, by said network controller, to handover said mobile station from said first base station to said second base station based on said signal strengths; and handing over said mobile station from said first base station to said second base station based on said determination by said network controller." These steps clearly claim that the network controller makes decisions regarding handover, initiates the handover, and controls the handover. Further, these steps clearly claim that the network controller makes the handover decisions based on the relative signal strengths provided by the mobile station. As such, the language of independent claim 102 clearly supports the applicants' previous and current arguments.

For at least these reasons, Gilhousen does not anticipate independent claim 102.

2. *Gilhousen does not anticipate the further limitations of claim 111.*

Claim 111 depends from independent claim 102 and further defines the handing over step of claim 102 to include "temporarily transmitting data to said mobile station from said first base station using a first CDMA spreading code, and simultaneously transmitting the same data to said mobile station from said second base station using a second CDMA spreading code for diversity transmission to said mobile station." The examiner asserts that transmitting different pilot signals from different base stations using the same pilot code offset by different phase offsets, as taught by Gilhousen, anticipates the language of claim 111 (FOA, page 3, lines 9 –

15). However, as discussed above, the use of different phase offsets as taught by Gilhousen, does not enable diversity transmission, as required by claim 111. For at least this reason, Gilhousen does not anticipate claim 111.

3. *Gilhousen does not anticipate the further limitations of claim 112.*

Claim 112 depends from independent claim 102 and further claims that the mobile station “communicates with said first base station using a first CDMA spreading code before and during handover, and ... communicates with said second base station using a second CDMA spreading code during and after handover.” The examiner asserts that column 4, line 54 to column 5, line 11 of Gilhousen teaches different base stations using different spreading codes to communicate with a mobile station (FOA page 3, lines 16 – 22). However, the section cited by the examiner simply discusses the PN code allocated during call setup and notes that the PN code address assigned to the mobile station does not need to change. This section says nothing about the mobile station using different CDMA spreading codes to communicate with different base stations. As such, Gilhousen does not anticipate claim 112.

Claim 112 further includes the limitation of “sending a control message from said first base station to said mobile station that identifies said second CDMA spreading code to support handover of said mobile station.” The examiner asserts that column 10, line 65 to column 11, line 7 in Gilhousen anticipates this limitation (FOA, page 4, lines 1 – 3). However, this section simply describes how Gilhousen’s mobile station uses a PN sequence defined at call setup. Nothing in this section or any other part of Gilhousen describes a first base station sending a control message to the mobile station during handover, where the control message identifies a second CDMA spreading code to the mobile station. As such, Gilhousen does not anticipate the sending step of claim 112.

For at least these reasons, Gilhousen does not anticipate claim 112.

4. *Gilhousen does not anticipate the further limitations of claim 114.*

Claim 114 depends from claim 112 and further includes the limitation of “temporarily decoding transmit signals sent from said mobile station using said first and second CDMA spreading codes at both said first and second base stations for quadruple diversity combining of said transmit signals from said mobile station” during handover (emphasis added). On page 4, lines 5 – 11 of the FOA, the examiner asserts that column 3, lines 50 – 65 and column 5, lines 62 – 67 teach using different spreading codes to implement diversity. However, as discussed above, Gilhousen does not teach or suggest using different CDMA spreading codes for diversity transmission. Further, while Gilhousen does discuss some form of dual diversity combining (column 5, line 62 to column 6, line 5), nothing in Gilhousen teaches or suggests combining two signals spread with different CDMA spreading codes to achieve quadruple diversity combining, as required by claim 114. For at least these reasons, Gilhousen does not anticipate claim 114.

5. *Gilhousen does not anticipate the further limitations of claim 118.*

Claim 118 depends from claim 115 and further defines the establishing communications during handover step of claim 115. In particular, claim 118 defines the establishing step to include (emphasis added):

beginning transmissions from said second base station to said mobile station;
signaling said mobile station from said first base station to begin receiving said transmissions from said second base station;
receiving signaling from said mobile station at said first base station indicating a received signal strength of transmissions from said second base station; and
signaling said mobile station from said first base station to begin transmitting to said second base station and to begin responding to control signaling from said second base station after determining that said mobile station is receiving transmissions from said second base station at a sufficient signal strength.

The applicants note that claim 118 further defines the procedure for handing over control from the first base station to the second base station. As claimed in claim 118, the handover

procedure includes receiving signal strength information at the first base station during handover. The examiner asserts that Gilhousen describes this element in column 4, lines 16 to column 5, line 11 (FOA, page 5, lines 3 – 14). As detailed below, the cited section directly contradicts the examiner's assertions.

First, in column 4, lines 16 – 53 Gilhousen describes how handover is initiated based on a control message sent to the network from the mobile station. As discussed above, the control message of Gilhousen does not include signal strength information for any neighboring base stations. Further, the applicants note that the mobile station sends the control message to the network before handover begins. Because claim 118 claims details regarding the handover process, column 4, lines 16 – 53 does not apply to claim 118.

Column 4, line 54 to column 5, line 11 describes the actual handover process. However, nothing in column 4, line 54 to column 5, line 11 teaches or suggests that the mobile station provides any type of signal strength information to the old base station or to the network during handover. Therefore, Gilhousen does not anticipate the receiving step of claim 118.

In addition, the signaling step of claim 118 claims that the first base station instructs the mobile station to begin transmitting to/receiving from the new base station after determining that the mobile station is receiving transmissions from the second base station at a sufficient signal strength. Contrastingly, column 4, line 62 to column 5, line 4 of Gilhousen simply indicate that the mobile station begins transmitting to/receiving from the new base station at the beginning of handover. Nothing in the cited section says anything about determining if the signals received from the new base station have sufficient strength before instructing the mobile station to begin communicating with the new base station. Therefore, Gilhousen does not anticipate the signaling step of claim 118.

For at least these reasons, Gilhousen does not anticipate claim 118.

6. *Gilhousen does not anticipate the further limitations of claim 120.*

Claim 120 depends from claim 118 and further defines the signaling step of claim 118 to include “sending a control message to said mobile station via said first base station that identifies a CDMA spreading code used by said second base station to transmit to said mobile station” (emphasis added). The examiner asserts that column 10, line 65 to column 11, line 7 of Gilhousen anticipate this claim (FOA, page 5, lines 15 – 18). However, as discussed above, the cited section simply teaches using a known PN sequence to encode a signal, where the PN sequence does not change during handover. Because nothing in Gilhousen teaches or suggests that the new base station uses a CDMA spreading code that differs from the CDMA spreading code used by the old base station, Gilhousen does not anticipate claim 120.

7. *Gilhousen does not anticipate the further limitations of claim 121.*

Claim 121 depends from claim 118 and further defines the receiving step of claim 118 to include “receiving one or more data messages indicating a received signal strength of said transmissions to said mobile station from said second base station.” The examiner asserts that column 4, lines 45 – 50 of Gilhousen teach that the mobile station sends signal strength information (FOA, page 5, lines 19 – 21). However, as discussed above and as discussed repeatedly throughout prosecution, nothing in Gilhousen says anything about the mobile station reporting the strength of signals received from the second base station to the network, or anything about exchanging any kind of signal strength messages during handover, as required by claim 121. As such, Gilhousen does not anticipate claim 121.

8. *Gilhousen does not anticipate the further limitations of claim 125.*

Claim 125 depends from claim 122, which depends from 102. Claim 122 includes a step for retaining an existing connection for the mobile station at the first base station while establishing a new connection for the mobile station at the second base station. Claim 125 further defines the establishing step of claim 122 to include, *inter alia*, “receiving signal strength

reports from said mobile station at said first base station indicating a signal strength of said transmissions from said second base station, and transferring control of said mobile station to said second base station after said signal strength of said transmissions is sufficient" (emphasis added). The examiner asserts that Gilhousen anticipates claim 125 for the same reasons set forth in the rejection of claim 118 (FOA, page 6, line 15). As such, the examiner asserts that the control message sent from the mobile station to the network before handover includes the signal strength reports of claim 125. However, in so doing, the examiner completely ignores the specific "signal strength reports" language in claim 125. For at least this reason, the rejection is incomplete and must be withdrawn.

Further, as discussed above, nothing in Gilhousen teaches or suggests sending signal strength information from the mobile station to the first (old) base station, where the signal strength information indicates the strength of the signals transmitted from the second (new) base station to the mobile station. As such, the old base station in Gilhousen does not receive any signal strength reports that indicate such signal strength information. Therefore, Gilhousen does not anticipate the receiving step of claim 125.

In addition, as discussed above, Gilhousen does not transfer control of the mobile station to the second base station after determining that the signal strength of the transmissions from the second base station is sufficient, as required by claim 125. Therefore, Gilhousen does not anticipate the transferring step of claim 125.

For at least these reasons, Gilhousen does not anticipate claim 125.

E. Gilhousen and Farwell do not render claim 110 obvious.

The examiner rejects claim 110 under 35 U.S.C §103(a) as being obvious over Gilhousen in view of Farwell. This obviousness rejection relies on the same erroneous assertions and technical misstatements regarding Gilhousen as are relied on in the legally unsupportable anticipation rejection of claim 102, from which claim 110 directly depends.

Because Gilhousen does not teach the limitations of the claim 102, dependent claim 110 is necessarily patentably distinct over the combination of Gilhousen and any other prior art reference.

F. Gilhousen and Hiatala do not render claims 116 and 119 obvious.

Claim 116 depends from claims 102 and 115 and further defines the handing over step of claim 102 to include “ending communications with said mobile station from said first base station after said establishing communications with said mobile station from said second base station by ramping down a transmit signal for said mobile station to a low power level, wherein said ramping down is controlled to reduce disturbances to any other mobile stations communicating with said first base station” (emphasis added). Claim 119 depends from claims 102, 115, and 118 and further defines the beginning transmissions step of claim 118 to include “ramping up a transmit signal for said mobile station to a desired transmit power level, wherein said ramping is controlled to reduce disturbances to any other mobile stations already communicating with said second base station” (emphasis added).

1. *The obviousness rejection is irrelevant.*

The examiner rejects claims 116 and 119 under 35 U.S.C §103(a) as being obvious over Gilhousen in view of Hietala. These obviousness rejections rely on the same erroneous assertions and technical misstatements regarding Gilhousen as are relied on in the legally unsupportable anticipation rejection of claims 102, 115, and 118 from which claims 116 and 119 directly or indirectly depend. Because Gilhousen does not teach the limitations of the claims 102, 115, or 118, dependent claims 116 and 119 are necessarily patentably distinct over the combination of Gilhousen and any other prior art reference.

2. *There is no motivation to combine Hietala with Gilhousen.*

As discussed above, Gilhousen describes processes for handing over control of a mobile station from a first base station to a second base station in a CDMA system. Hietala

describes a method and apparatus for ramping a mobile station power amplifier output up/down while transmitting signals from the mobile station during a time slot allocated to the mobile station in a TDMA system. The examiner asserts “it would have been obvious to one of ordinary skill in the art at the time of the invention to provide the [ramping] teaching of Hietala to [the handover process of] Gilhousen, in order to reduce disturbances to any other mobile stations” (FOA, page 8, lines 9 – 12). However, in so doing, the examiner completely ignores the fact that Hietala has nothing to do with handover, and that Gilhousen has nothing to do with TDMA systems or the problems related to TDMA systems. Because Gilhousen and Hietala describe unrelated elements and aspects of different wireless communication systems, one skilled in the art would not be motivated to apply the ramping teachings of Hietala to the handover teachings of Gilhousen.

Further, there is no motivation to combine Hietala with Gilhousen because it is unclear how or where the ramping process described by Hietala would be incorporated with the handover teachings of Gilhousen. The applicants note that Gilhousen does not say anything about the need for reducing disturbances to other mobile stations during handover. As such, Gilhousen would not motivate the skilled person to ramp the transmission power during handover. Further, Hietala has nothing to do with handover. Therefore, Hietala would not motivate the skilled person to incorporate Hietala’s ramping process with a CDMA handover process. For at least these reasons, there is no motivation to combine Hietala with Gilhousen.

The applicants further note that simply because prior art can be modified to form a claimed invention, does not mean there is motivation to make the modification. *In re Laskowski*, 871 F.2d 115, 117 (Fed. Cir. 1989); *In re Gordon*, 733 F.2d 900, 902 (Fed. Cir. 1984). Therefore, while Hietala teaches ramping a transmission power up/down, Hietala only teaches doing so during a mobile station’s transmission time slot to reduce disturbances during that time slot. Nothing in Hietala suggests ramping the transmission power during handover

and nothing in Gilhousen suggests that there is a need to reduce transmission disturbances during handover. As such, the examiner's motivation is legally flawed and must be withdrawn.

For at least these reasons, there is no motivation to combine Gilhousen with Hietala.

3. *The combination does not teach the invention of claim 116.*

Even if combined, the combination of Hietala does not teach "ending communications with said mobile station from said first base station after said establishing communications with said mobile station from said second base station by ramping down a transmit signal for said mobile station to a low power level," as required by claim 116 (emphasis added). In rejecting the claim, the examiner provides no indication as to how the ramping process described in Hietala could or would be incorporated with the handover process of Gilhousen. For at least this reason, the rejection is incomplete and must be withdrawn.

Further, as discussed above, Hietala specifically describes ramping up/down the transmit power of a mobile station during the mobile station's allocated TDMA time slot. However, this teaching does not suggest using the ramping process taught by Hietala to end communications with a first base station after establishing communications with a second base station. Therefore, the combination of Hietala with Gilhousen does not teach the invention of claim 116.

4. *The combination does not teach the invention of claim 119.*

Even if combined, the combination of Hietala does not teach beginning to transmit from a second base station to the mobile station by ramping up a transmit power from the second base station, as required by claim 119. As with claim 116, the examiner provides no indication as to how the ramping process described in Hietala could or would be incorporated with the handover process of Gilhousen. For at least this reason, the rejection is incomplete and must be withdrawn.

In addition, Hietala specifically describes ramping up/down the transmit power of a mobile station during the mobile station's allocated TDMA time slot, as discussed above. However, this teaching does not suggest using the ramping process taught by Hietala to control the transmit power of a base station. Further, this teaching does not suggest using a ramping process during handover to begin transmitting from the second base station while continuing to transmit from the first base station, as required by claim 119. Therefore, the combination of Hietala with Gilhousen does not teach the invention of claim 119.

VIII. CLAIMS APPENDIX

The following claims are on appeal:

102. A method of mobile-assisted handover in a wireless network comprising:
communicating with a mobile station from a first base station;
receiving, at a network controller, one or more data messages sent from said mobile station to said first base station that indicate relative signal strengths of at least a second base station operating on a same frequency as said first base station;
determining, by said network controller, to handover said mobile station from said first base station to said second base station based on said signal strengths; and
handing over said mobile station from said first base station to said second base station based on said determination by said network controller.
109. The method of claim 102, wherein handing over said mobile station comprises a same frequency soft handover from said first base station to said second base station.

110. The method of claim 102, wherein handing over said mobile station comprises a different frequency hard handover from said first base station to said second base station, wherein said second base station operates on the same frequency as said first base station and further operates on at least one different frequency.

111. The method of claim 102, wherein handing over said mobile station includes temporarily transmitting data to said mobile station from said first base station using a first CDMA spreading code, and simultaneously transmitting the same data to said mobile station from said second base station using a second CDMA spreading code for diversity transmission to said mobile station.

112. The method of claim 102, wherein said mobile station communicates with said first base station using a first CDMA spreading code before and during handover, and wherein said mobile station communicates with said second base station using a second CDMA spreading code during and after handover, and further comprising sending a control message from said first base station to said mobile station that identifies said second CDMA spreading code to support handover of said mobile station.

113. The method of claim 112, further comprising, during handover, temporarily decoding a transmit signal sent from said mobile station using said first CDMA spreading code at both said first and second base stations for dual diversity combining of said transmit signal from said mobile station.

114. The method of claim 112, further comprising, during handover, temporarily decoding transmit signals sent from said mobile station using said first and second CDMA spreading codes at both said first and second base stations for quadruple diversity combining of said transmit signals from said mobile station.

115. The method of claim 102, wherein handing over said mobile station comprises establishing communications with said mobile station from said second base station while retaining control of said mobile station at said first base station, and transferring control of said mobile station to said second base station after said establishing communications with said mobile station from said second base station.

116. The method of claim 115, wherein handing over said mobile station further comprises ending communications with said mobile station from said first base station after said establishing communications with said mobile station from said second base station by ramping down a transmit signal for said mobile station to a low power level, wherein said ramping down is controlled to reduce disturbances to any other mobile stations communicating with said first base station.

117. The method of claim 115, wherein transferring control includes forming power control commands for transmission to said mobile station at said first base station prior to transferring control of said mobile station, and forming power control commands for transmission to said mobile station at said second base station after transferring control of said mobile station, wherein said power control commands control a transmit power of said mobile station.

118. The method of claim 115, wherein establishing communications with said mobile station from said second base station comprises:

beginning transmissions from said second base station to said mobile station;
signaling said mobile station from said first base station to begin receiving said transmissions from said second base station;
receiving signaling from said mobile station at said first base station indicating a received signal strength of transmissions from said second base station; and
signaling said mobile station from said first base station to begin transmitting to said second base station and to begin responding to control signaling from said second base station after determining that said mobile station is receiving transmissions from said second base station at a sufficient signal strength.

119. The method of claim 118, wherein beginning transmissions from said second base station to said mobile station comprises ramping up a transmit signal for said mobile station to a desired transmit power level, wherein said ramping is controlled to reduce disturbances to any other mobile stations already communicating with said second base station.

120. The method of claim 118, wherein signaling said mobile station from said first base station to begin receiving said transmissions from said second base station comprises sending a control message to said mobile station via said first base station that identifies a CDMA spreading code used by said second base station to transmit to said mobile station.

121. The method of claim 118, wherein receiving signaling from said mobile station at said first base station indicating a signal strength of transmissions to said mobile station from said second base station comprises receiving one or more data messages indicating a received signal strength of said transmissions to said mobile station from said second base station.

122. The method of claim 102, wherein handing over said mobile station from said first base station to said second base station comprises retaining an existing connection for said mobile station at said first base station while establishing a new connection for said mobile station at said second base station, and ending said existing connection at said first base station after determining that said new connection at said second base station is established.

123. The method of claim 122, wherein retaining an existing connection for said mobile station at said first base station comprises continuing to transmit traffic and control signals to said mobile station from said first base station and continuing to receive traffic and control signals from said mobile station at said first base station.

124. The method of claim 123, wherein continuing to transmit traffic and control signals to said mobile station from said first base station includes continuing to send power control commands to said mobile station from said first base station to continue controlling a transmit power of said mobile station from said first base station at least until said new connection is established at said second base station.

125. The method of claim 122, wherein establishing a new connection for said mobile station at said second base station comprises beginning transmissions from said second base station, transmitting a command from said first base station to said mobile station directing said mobile station to begin receiving said transmissions from said second base station, receiving signal strength reports from said mobile station at said first base station indicating a signal strength of said transmissions from said second base station, and transferring control of said mobile station to said second base station after said signal strength of said transmissions is sufficient.

IX. EVIDENCE APPENDIX

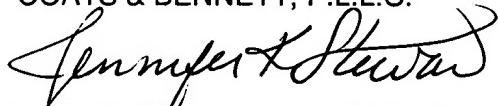
None.

X. RELATED PROCEEDINGS APPENDIX

See attached "Decision on Appeal" dated 28 March 2002.

Respectfully submitted,

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The opinion in support of the decision being entered today (1) was not written for publication in a law journal and (2) is not binding precedent of the Board.



Paper No. 40

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte BENGT Y. PERSSON, BJORN GUDMUNDSON and PAUL W. DENT

Appeal No. 2000-1557
Application 08/384,456

MAILED

MAR 28 2002

ON BRIEF

PAT. & T.M. OFFICE
BOARD OF PATENT APPEALS
AND INTERFERENCES

Before HAIRSTON, KRASS, and JERRY SMITH, Administrative Patent Judges.

JERRY SMITH, Administrative Patent Judge.

URGENT

DECISION ON APPEAL

This is a decision on the appeal under 35 U.S.C. § 134 from the examiner's final rejection of claims 1-52, which constituted all the claims in the application. The brief on appeal withdrew the appeal with respect to claims 23-48 and these claims were cancelled. In response to the filing of the appeal

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Appeal to Court 5/28/02

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brief, the examiner has withdrawn the rejection of claims 2, 5, 16, 49 and 51. Therefore, this appeal is now directed to the rejection of claims 1, 3, 4, 6-15, 17-22, 50 and 52.

The disclosed invention pertains to the field of cellular mobile communications systems. Specifically, the invention relates to a method and apparatus for controlling communications between at least one mobile station and at least two base stations.

Representative claim 1 is reproduced as follows:

1. In a cellular mobile radio communications system including at least one mobile station and at least two base stations, a method of communicating with said mobile station from a first and a second of said base stations comprising the step of:

transmitting a signal on a first frequency from said first base station to said mobile station using a waveform encoded with a first code;

sending a transfer indication from said first base station to said second base station which commands the second base station to begin communicating with said mobile station;

after receiving said transfer indication, transmitting a signal on said first frequency from said second base station to said mobile station using a waveform encoded with a second code which is different from said first code; and

receiving at said mobile station said signals transmitted on said first frequency from said first and second base stations and decoding said signals using said first and second codes to produce a first and a second demodulated signal.

Appeal No. 2000-1557
Application 08/384,456

The examiner relies on the following references:

Gilhousen et al. (Gilhousen)	5,109,390	Apr. 28, 1992
Falconer et al. (Falconer)	5,159,608	Oct. 27, 1992
Blakeney, II et al. (Blakeney)	5,267,261	Nov. 30, 1993
Gudmundson	5,295,153	Mar. 15, 1994

The following rejections remain on appeal before us:

1. Claims 50 and 52 stand rejected under 35 U.S.C. § 112, first paragraph, as containing subject matter which was not described in the specification in such a manner as to reasonably convey to the artisan that the inventors, at the time this application was filed, had possession of the claimed invention.

2. Claims 14, 15 and 52 stand rejected under 35 U.S.C. § 102(e) as being anticipated by the disclosure of Blakeney.

3. Claims 7-9 and 17 stand rejected under 35 U.S.C. § 103 as being unpatentable over the teachings of Blakeney and Falconer.

4. Claims 1, 3, 4, 6, 10-13 and 50 stand rejected under 35 U.S.C. § 103 as being unpatentable over the teachings of Blakeney.

5. Claims 18-22 stand rejected under 35 U.S.C. § 103 as being unpatentable over the teachings of Blakeney and Gudmundson.

Rather than repeat the arguments of appellants or the examiner, we make reference to the brief and the answer for the respective details thereof.

OPINION

We have carefully considered the subject matter on appeal, the rejections advanced by the examiner and the evidence of anticipation and obviousness relied upon by the examiner as support for the prior art rejections. We have, likewise, reviewed and taken into consideration, in reaching our decision, the appellants' arguments set forth in the brief along with the examiner's rationale in support of the rejections and arguments in rebuttal set forth in the examiner's answer.

It is our view, after consideration of the record before us, that the disclosure does not support the invention now recited in claims 50 and 52. We are also of the view that the prior art evidence relied upon by the examiner supports the rejection of claims 1, 3, 4, 6-15, 17-19, 50 and 52. We reach the opposite conclusion with respect to claims 20-22. Accordingly, we affirm-in-part.

We consider first the rejection of claims 50 and 52 as being based on an inadequate disclosure. The examiner finds that the original specification fails to disclose the error correcting

step including combination of the first and second demodulated signals within or subsequent to the determination by the error correction decoding process of the data most likely transmitted [answer, page 3]. Appellants simply respond that the claimed phrase is fully supported by the disclosure and original claim 6 [brief, page 6]. The examiner responds that the portion of the disclosure relied on by appellants and original claim 6 are totally silent about the phrase in question [answer, pages 10-11].

We agree with the position argued by the examiner. The rejection is based on the written description requirement of 35 U.S.C. § 112. The purpose of the written description requirement is to ensure that the applicants convey with reasonable clarity to those skilled in the art that they were in possession of the invention as of the filing date of the application. For the purposes of the written description requirement, the invention is "whatever is now claimed." Vas-cath, Inc. v. Mahurkar, 935 F.2d 1555, 1564, 19 USPQ2d 1111, 1117 (Fed. Cir. 1991). We have considered the record, and we cannot find clear support for the recitation that the error correcting step includes combination of said first and second demodulated signals "within or subsequent to" the determination

by the error correction decoding process of the data most likely transmitted. Therefore, we sustain this rejection of claims 50 and 52.

We now consider the rejection of claims 14, 15 and 52 under 35 U.S.C. § 102(e) as being anticipated by the disclosure of Blakeney. Anticipation is established only when a single prior art reference discloses, expressly or under the principles of inherency, each and every element of a claimed invention as well as disclosing structure which is capable of performing the recited functional limitations. RCA Corp. v. Applied Digital Data Systems, Inc., 730 F.2d 1440, 1444, 221 USPQ 385, 388 (Fed. Cir.); cert. dismissed, 468 U.S. 1228 (1984); W.L. Gore and Associates, Inc. v. Garlock, Inc., 721 F.2d 1540, 1554, 220 USPQ 303, 313 (Fed. Cir. 1983), cert. denied, 469 U.S. 851 (1984).

The examiner indicates how he finds the invention of these claims to be fully met by the disclosure of Blakeney [answer, page 4]. With respect to claim 14, appellants argue that Blakeney does not describe a post-detect combining wherein the first and second signals are decoded to produce first and second demodulated signals [brief, pages 7-8]. The examiner explains that the signal received at a mobile station is demodulated by receivers 40 and 42 and then decoding is performed

in the decoder 48. Thus, the examiner reads the first and second demodulated signals on the outputs of the receivers 40 and 42 [answer, pages 12-13].

We agree with the examiner for the reasons given in the response to arguments section of the answer. Since receivers 40 and 42 correlate the IF samples with the proper PN sequence, we find that this operation constitutes a demodulation of the incoming signals. Therefore, we sustain this rejection of claim 14.

With respect to claim 15, appellants argue that the cited portion of Blakeney does not indicate that the base station identifications are used in the same manner as the claimed first and second codes. The examiner responds by further explaining how he finds anticipation in the disclosure of Blakeney [answer, pages 13-14]. We agree with the examiner that this further explanation of the rejection indicates that the invention of claim 15 is fully met by the disclosure of Blakeney. Since appellants have not pointed out the flaw, if any, in this further explanation, we sustain this rejection of claim 15.

With respect to claim 52, appellants argue that Blakeney operates in the opposite manner from the claimed invention [brief, page 9]. The examiner responds that Blakeney meets the within portion of the claimed phrase "within or subsequent to" [answer, pages 14-15]. We again agree with this interpretation of the examiner. Since appellants have not responded to this particular finding of the examiner, we sustain this rejection of claim 52.

We now consider the rejections of the claims under 35 U.S.C. § 103. In rejecting claims under 35 U.S.C. § 103, it is incumbent upon the examiner to establish a factual basis to support the legal conclusion of obviousness. See In re Fine, 837 F.2d 1071, 1073, 5 USPQ2d 1596, 1598 (Fed. Cir. 1988). In so doing, the examiner is expected to make the factual determinations set forth in Graham v. John Deere Co., 383 U.S. 1, 17, 148 USPQ 459, 467 (1966), and to provide a reason why one having ordinary skill in the pertinent art would have been led to modify the prior art or to combine prior art references to arrive at the claimed invention. Such reason must stem from some teaching, suggestion or implication in the prior art as a whole or knowledge generally available to one having ordinary skill in the art. Uniroyal, Inc. v. Rudkin-Wiley Corp., 837 F.2d 1044,

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1051, 5 USPQ2d 1434, 1438 (Fed. Cir.), cert. denied, 488 U.S. 825 (1988); Ashland Oil, Inc. v. Delta Resins & Refractories, Inc.,

776 F.2d 281, 293, 227 USPQ 657, 664 (Fed. Cir. 1985), cert. denied, 475 U.S. 1017 (1986); ACS Hosp. Sys., Inc. v. Montefiore Hosp., 732 F.2d 1572, 1577, 221 USPQ 929, 933 (Fed. Cir. 1984).

These showings by the examiner are an essential part of complying with the burden of presenting a prima facie case of obviousness.

Note In re Oetiker, 977 F.2d 1443, 1445, 24 USPQ2d 1443, 1444 (Fed. Cir. 1992). If that burden is met, the burden then shifts to the applicant to overcome the prima facie case with argument and/or evidence. Obviousness is then determined on the basis of the evidence as a whole and the relative persuasiveness of the arguments. See Id.; In re Hedges, 783 F.2d 1038, 1039, 228 USPQ 685, 686 (Fed. Cir. 1986); In re Piasecki, 745 F.2d 1468, 1472, 223 USPQ 785, 788 (Fed. Cir. 1984); and In re Rinehart, 531 F.2d 1048, 1052, 189 USPQ 143, 147 (CCPA 1976). Only those arguments actually made by appellants have been considered in this decision. Arguments which appellants could have made but chose not to make in the brief have not been considered [see 37 CFR § 1.192(a)].

We consider first the rejection of claims 7-9 and 17 based on the teachings of Blakeney and Falconer. These claims stand or fall together as a single group [brief, page 5]. The examiner finds that Blakeney teaches the claimed invention except for the encoding of each of the transmitted signals with a different scrambling code. The examiner cites Falconer as teaching the use of unique scrambling codes to eliminate cross talk and make it difficult to eavesdrop or track calls. The examiner finds that it would have been obvious to the artisan to use the scrambling codes of Falconer in the communications system of Blakeney [answer, pages 5-6].

Appellants argue that there is no indication that problems exist in Blakeney which could be solved by use of different scrambling codes as claimed. Appellants also argue that Blakeney does not teach the use of signal strengths as claimed [brief, pages 10-12]. The examiner responds that different scrambling codes enhance the security of a communications system as taught by Falconer. The examiner also responds that the recitations of claim 7 are broad enough to read on the transmission of signal strengths as disclosed by Blakeney [answer, pages 15-16].

We agree with the position of the examiner as set forth in the response to arguments section of the answer. Since appellants have not addressed these specific findings of the examiner, we sustain this rejection of claims 7-9 and 17.

We now consider the rejection of claims 1, 3, 4, 6, 10-13 and 50 based on the teachings of Blakeney taken alone. The examiner indicates how he finds obviousness on pages 6-8 of the answer. With respect to claim 1, appellants argue that Blakeney does not use first and second codes as claimed. Specifically, appellants argue that using different phase offsets of a single code is not the same as using different codes. Appellants also argue that first and second demodulated signals are not generated by the receiver [brief, pages 12-14]. With respect to the first argument, the examiner responds that the different phase offsets in Blakeney result in different codes as broadly recited in claim 1. We agree with this position for the reasons indicated by the examiner [answer, pages 17-18]. With respect to the second argument, the examiner notes that this is the same argument discussed above with respect to claim 14. For reasons discussed above with respect to claim 14, this argument is also not persuasive of error in this rejection. Therefore, we sustain this rejection of claims 1, 3 and 4.

With respect to claim 6, appellants argue that Blakeney does not teach or suggest combining symbols from demodulated signals as claimed. The examiner points to portions of Blakeney which suggest combining symbols as claimed. Since the examiner's position in the response to arguments section of the answer is persuasive, and since appellants have not specifically addressed this response, we sustain this rejection of claim 6.

With respect to claim 10, appellants argue that Blakeney does not teach the three different codes of claim 10. The examiner responds by indicating how he reads the three codes on the disclosure of Blakeney [answer, page 19]. Since this reading of the examiner establishes a prima facie case of obviousness, and since appellants do not respond to this specific reading of the examiner, we sustain this rejection of claim 10.

With respect to claims 11-13, appellants argue that the claimed combination of codes is not taught or suggested by Blakeney. The examiner responds by explaining how the combination of codes is specifically met by Blakeney [answer, page 19-20]. Once again, this specific explanation by the examiner establishes a prima facie case of obviousness which has not been persuasively rebutted by appellants. Therefore, we sustain this rejection of claims 11-13. With respect to claim

52, appellants make the same arguments we considered above with respect to claim 52. Therefore, we also sustain this rejection of claim 50.

We now consider the rejection of claims 18-22 based on Blakeney and Gudmundson. The examiner indicates how he finds obviousness on pages 8-10 of the answer. With respect to claims 18 and 19, appellants argue that the soft handoff techniques of Blakeney are different from those claimed for reasons discussed above with respect to claim 1. Appellants also argue that only their own disclosure teaches using subtractive demodulation during soft handoff. The examiner notes the arguments discussed above with respect to claim 1 and responds that Gudmundson teaches the use of subtractive demodulation during handoff [answer, pages 21-22]. We agree with the examiner for reasons discussed above and for the reasons given by the examiner in the answer. Therefore, we sustain this rejection of claims 18 and 19.

With respect to claims 20-22, appellants argue that the examiner has improperly relied on appellants' own disclosure to support the rejection [brief, page 17]. The examiner responds

that the conventional power control disclosed by appellants in combination with the desire to reduce interference would have suggested the invention of claims 20-22.

We will not sustain the rejection of claims 20-22. We agree with appellants that the examiner's reliance on appellants' own disclosure as providing prior art to support the rejection is improper.

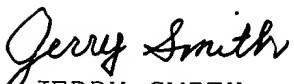
In summary, the examiner's rejection of claims 50 and 52 under 35 U.S.C. § 112 is sustained. The examiner's rejection of claims 14, 15 and 52 under 35 U.S.C. § 102 is sustained. The examiner's rejection of claims 1, 3, 4, 6-13, 17-22 and 50 is sustained with respect to claims 1, 3, 4, 6-13, 17-19 and 50 but is not sustained with respect to claims 20-22. Accordingly, the decision of the examiner rejecting claims 1, 3, 4, 6-15, 17-22, 50 and 52 is affirmed-in-part.

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No time period for taking any subsequent action in connection with this appeal may be extended under 37 CFR § 1.136(a).

AFFIRMED-IN-PART


KENNETH W. HAIRSTON)
Administrative Patent Judge)
)

ERROL A. KRASS) BOARD OF PATENT
Administrative Patent Judge)
) APPEALS AND
)

JERRY SMITH) INTERFERENCES
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